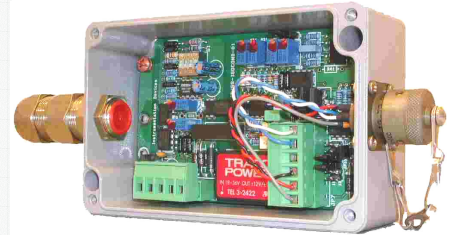


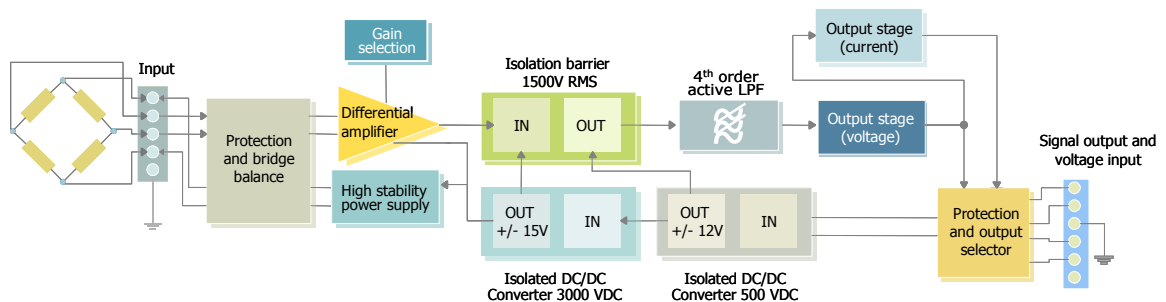
GLE/SG-IsoCond01 Isolated strain gauges signal conditioner

- Isolated signal conditioner for strain-gage bridges, like load cells and pressure transducers (full-bridge)
- High stable 10V strain gage excitation
- 0-5V or 4-20mA analog output
- Full-scale sensitivities of 1mV/V, 2mV/V, 3mV/V and 4mV/V.
- 1500Vrms input/output isolation
- Analog output isolated from power supply (350Vrms)
- >100dB CMRR
- IP65 housing



Overview

GLE/SG-IsoCond-01 is a highly accurate and cost-effective signal conditioner for single-channel strain gauges and Wheatstone bridges in general like load cells and pressure transducers. The module accepts $350\ \Omega$ (or greater) full-bridge gages providing the appropriate bridge excitation, signal filtering and conversion to a high level voltage output. Moreover GLE/SG-IsoCond-01 has been designed to perform reliable internal isolation: voltages up to 2100 VDC (equivalent to 1500 Vrms) can drop between the input and the output stages of the conditioner (see the block diagram reported below). Special protection circuits are also present on the signal input in order to prevent against pulsed over-voltages, undesired spikes and RF interferences. The same section also permits, via a trim pot, the zero fine adjustment and hence to offset eventual bridge imbalances.



SGIsoCond-01 Block diagram

An extremely stable 10 V source provides the needed voltage excitation for the transducers. This section comprises a series-type voltage regulator that outputs a high-stability voltage reference. Besides a screwdriver adjustable trim pot enables fine tuning around 10 V.

The amplification stage includes a precision monolithic differential amplifier. By means of dip-switches it is possible to select one of four pre-configured gain values (standard sensitivities corresponds to 1, 2, 3 and 4 mV/V). Isolation between the input and the output stage is provided by an isolation module downstream the amplifier (Isolation barrier in the block diagram) and by a high isolation DC/DC converter.

Eventual spurious signals can be filtered out through a 4th order low-pass active filter (standard cut-off frequency is equal to 10Hz), while module output is either voltage (0÷5 V) or current (4÷20 mA). For both these output options zero and gain fine adjustments are available using on-board potentiometers. Isolation is guaranteed also between the output stage and the primary voltage supply, assuring protection up to 500 VDC (350 Vrms).

Output signals and power lines are connected to the unit by a 7-pins rugged bayonet connector, while input signals and transducer excitation enter in the module via gland and they are secured by means of a removable screw connector. GLE/SG-IsoCond-01 housing is made of a rugged IP65 metallic case enabling usage even in extreme environmental operating conditions.

Technical Specifications- GLE/SG-IsoCond-01

Input channels	1
Transducer type	Full bridge sensor
Bridge load resistance	$\geq 350 \Omega$
Input impedance	$> 10 M\Omega$
Common mode rejection ratio CMMR	$> 100 \text{ dB}$
Input over-voltage	$\pm 40 \text{ V}$ (not destructive)
Gain selectable values	500, 250, 166.7 and 125 (corresponded to 1mV/V, 2mV/V, 3mV/V and 4mV/V)*
Gain selection	Through dip-switches
Stability	$\pm 50 \text{ ppm}/^\circ\text{C rto}$; $\pm 1 \text{ ppm}/^\circ\text{C rti}$
Bridge balance	Via screwdriver adjustable trim pot
Transducer excitation	10 Vcc; high stability (8.5 ppm/ $^\circ\text{C}$); 2 wires with fine tuning
Output signal	1. Voltage: 0÷5V 2. Current: 4÷20 mA
Output type selection	Through dip-switches
Output filter	4 th order active low-pass; cut-off frequency = 10 Hz
Maximum loop load resistance (4÷20 mA output)	450 Ω (without auxiliary power source)
Adjustability	$\pm 5\%$ Zero and span
Accuracy (@ 25°C)	0.05% (linearity, hysteresis, repeatability and sensor excitation included)
Input/Output isolation	1500 Vrms
Output/Power supply isolation	350 Vrms
Isolation Mode Rejection IMR	$> 100 \text{ dB @ } 50\text{Hz}$
Power supply	18 ÷ 36 VDC (Current absorption $\cong 100 \text{ mA @ } 24 \text{ VDC}$)
Transducer connector	Removable screw terminals (cable enter in the case via gland).
Primary voltage supply and output connector	7-pins bayonet
Operative temperature	-40 ÷ +80 $^\circ\text{C}$
Housing	Metallic IP65 case
Dimensions	80 x 125 x 57 [mm] (glands excluded)
<i>* Other gain options are available on request</i>	

Due to continuous developments specifications subject to change without prior notice.

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